WHAT IS CLAIMED IS:

1. A transport system for an automatic sample testing machine comprising, in combination:

a) a carrier holding test sample devices and having a position tracking feature formed in said carrier; and

b) a drive subsystem for moving said carrier through said automatic sample testing machine, said drive subsystem comprising a reciprocating motor-driven block engaging said carrier and moving said carrier back and forth in a predetermined longitudinal path, said path having a first end and a second end, said path extending along a longitudinal axis from an entrance station to a plurality of processing stations in said automatic sample testing machine, wherein said plurality of processing stations are accessed as said carrier is moved along said path; and

c) at least one carrier position tracking sensor placed along said path detecting the position tracking feature on said carrier as said carrier is moved along said path.

2. The system of claim 1, wherein said carrier and at least one sensor are constructed and arranged such that said at least one sensor detects the position of test sample devices carried in said carrier along said path.

3. The system of claim 1, wherein said block comprises a first surface engaging said carrier for moving said carrier in a first direction along said path and wherein said block receives a lift pins means for engaging said carrier for moving said carrier in a second opposite direction along said path.

4. The system of claim 1, wherein said drive subsystem further comprises:

a threaded shaft having a first end and a second end, said shaft extending between said first and second ends of said path,

a servomotor driving said shaft and located at said first end,

a fixed front bearing mount receiving said second end of said shaft,

a slide extending parallel to said threaded shaft along said path between said first and second ends and extending through said block, and

a threaded member fixed with respect to said block receiving said threaded shaft,

wherein as said shaft rotates within said threaded member, said block is slid along said slide to thereby move said block between said first and second ends of said path.

5. The system of claim 1, further comprising a pair of replaceable wear strips providing a bearing surface for said carrier as said carrier is moved along said path between said first and second ends.

6. A transport system for an automatic sample testing machine, the automatic sample testing machine using a carrier to support a set of test devices and having a) an entrance station for placement of the carrier within the automatic sample testing system and b) a plurality of processing stations, comprising, in combination:

a reciprocating motor-driven block, said block adapted for engaging said carrier and moving said carrier back and forth in a predetermined longitudinal path, said path having a first end and a second end, said path extending along a longitudinal axis from said entrance station to

said plurality of processing stations in said automatic sample testing machine, wherein said plurality of processing stations are accessed as said carrier is moved along said path;

a threaded shaft having a first end and a second end, said shaft extending between said first and second ends of said path,

a servomotor driving said shaft and located at said first end,

a fixed front bearing mount receiving said second end of said shaft,

a slide extending parallel to said threaded shaft along said path between said first and second ends and extending through said block, and

a threaded member fixed with respect to said block receiving said threaded shaft,

wherein as said shaft rotates within said threaded member, said block is slid along said slide to thereby move said block and a carrier engaged with said block between said first and second ends of said path.

7. The system of claim 6, wherein said block comprises a first surface engaging said carrier for moving said carrier in a first direction along said path and wherein said block receives a lift pin means for engaging said carrier for moving said carrier in a second opposite direction along said path.

8. The system of claim 7, wherein said lift pin means comprise a pair of pins movable between raised and lowered positions and wherein said path further comprising a ramp at said entrance station having an upper level and lower level, wherein when said block is positioned at said entrance station said lift pins are moved to said lowered position and as said block is moved from said entrance station towards said processing stations said block is moved over said ramp

wherein said lift pins move from said lowered position to said raised position to thereby move into a position to engage said carrier and drag said carrier along said path as said block is moved further towards said processing stations.

9. The system of claim 6, further comprising a pair of replaceable wear strips providing a bearing surface for said carrier as said carrier is moved along said path between said first and second ends.

10. In an automatic sample testing machine having a carrier to support test devices and having a plurality of processing stations, the automatic sample testing system further including a transport system for moving said carrier along a path within said automatic sample testing machine, the improvement comprising:

said carrier comprises a set of position tracking features in alignment with positions of a respective set of test sample devices carried in said carrier; and

providing one or more carrier position tracking optical sensors placed along said path, said one or more optical sensors for detecting the position of said position tracking features and associated test sample devices carried in said carrier as said carrier is moved along said path.

11. The improvement of claim 10, wherein said optical sensors comprise at least three sensors for detecting the position of said carrier as said carrier is moved along said path, each of said sensors positioned at a predetermined location relative to an associated processing station in said automatic sample testing machine.

12. The improvement of claim 11, wherein each of said sensors comprises an optical interrupt sensor, wherein the detection of one of said position tracking features by one of said sensors indicates the position of a respective test sample device carried in said carrier relative to the processing station associated with said sensor.

13. A method of determining the position of test sample devices carried by a carrier as said carrier is moved through a sample testing machine, comprising the steps of:

providing a plurality of optical interrupt sensors at predetermined, fixed positions in said sample testing machine;

providing a plurality of position tracking features in said carrier, said position tracking features formed in said carrier in alignment with test sample device holding features in said carrier;

moving said carrier through said sample testing machine, and

detecting the position tracking features with said optical interrupt sensors, whereby the detection of the position tracking feature with said optical interrupt sensor detects the position of test sample device carried by said carrier.

14. The method of claim 13, wherein the position tracking features comprise void features formed in said carrier.

15. The method of claim 13, wherein said sample testing machine comprises an incubation station processing said test sample devices and a loading station for moving said test sample

devices from said carrier into said incubation station, and wherein one of said optical interrupt sensors is placed in proximity to said loading station to thereby align said test sample devices with said loading station and facilitate automated loading of said test sample devices from said carrier into said incubation station.

16. The method of claim 13, wherein said test sample device includes a fluid transfer tube, and wherein said sample testing machine comprises a sealing station for cutting said fluid transfer tube and sealing said transfer tube to thereby seal said test sample device, and wherein one of said optical interrupt sensors is placed in proximity to said sealing station to thereby align said test sample device with said sealing station as said carrier is moved past said sealing station.

17. The method of claim 13, wherein said test sample device comprises a flat, thin, card-like object having a plurality of sample wells.

18. The improvement of claim 10, wherein said test sample device comprises a flat, thin, card-like object having a plurality of sample wells.

19. The improvement of claim 18, wherein said carrier further carries open receptacles containing fluid samples, and wherein said processing stations comprise a sealing station sealing a tube connecting said test sample devices to said fluid samples, a reading station reading machine readable indicia applied to said carrier and said test sample devices, and a loading station loading said test sample devices from said carrier into an incubation station, and wherein

an optical sensor is placed adjacent to said sealing station, said reading station and said loading station.